

A Two-Sided Market - I

A market where firms act as platforms and sell two different products to two different groups of buyers

taking into account that demand from one group of buyers depends on demand from the other group of buyers (so that these are not externalities for the firm)

while buyers of the two groups do not take this indirect network effects into account (so that these are in fact externalities for buyers)

(see Armstrong, 2006)

So that a two-sided platform

- is a particular two-product firm**
- is different from a firm selling complement products**

A Two-Sided Market - II

An additional condition is that customers on one side should not be able to pass through completely to customers on the other side an increase in the price they are asked by the platform.

In a two-sided market one can distinguish

a) the price level (roughly the sum of the two prices)

b) the price structure (roughly the ratio of the two prices)

The non-neutrality of the price structure (for firms profits and for welfare) is a sufficient condition for the existence of a two-sided market

(see Rochet and Tirole(2006))

Two-Sided markets: a clarification

Not all firms are two-sided platforms

Because firms buy inputs and sell output

This implies:

-they do not offer a service to input producers

-the input producers do not care about demand for their product by consumers once they are paid by the firm (note: it depends on the contract!)

e.g. Is a supermarket a two-sided platform?

Yes, but only to the extent it is able to make the wine producer pay (though a discount?) to have its wine on the right shelf (then it offers a service to them...)

Only then the wine producer will care about how many clients the supermarket has ...

Different Two-Sided Markets

Two types of two-sided market: the “media type” and the “payment card type” or equivalently “two-sided transaction” markets and “two-sided non transaction” markets

Also two types of two-sided markets of the “payment type”: the “3-party system” and the “4 (or 5) party system”

Two Types of Two-Sided Market-I

1) Two-Sided Transaction Market:

There is a transaction between end-users and it is observable to the platform

e.g. payment cards, auction houses

2) Two-Sided Non-Transaction Market:

There is no transaction between end-users

e.g. newspapers, TV

Note that

A non-transaction market is an extreme case of two-sided market

At the other extreme there is a one-sided market

Two types of two-sided markets

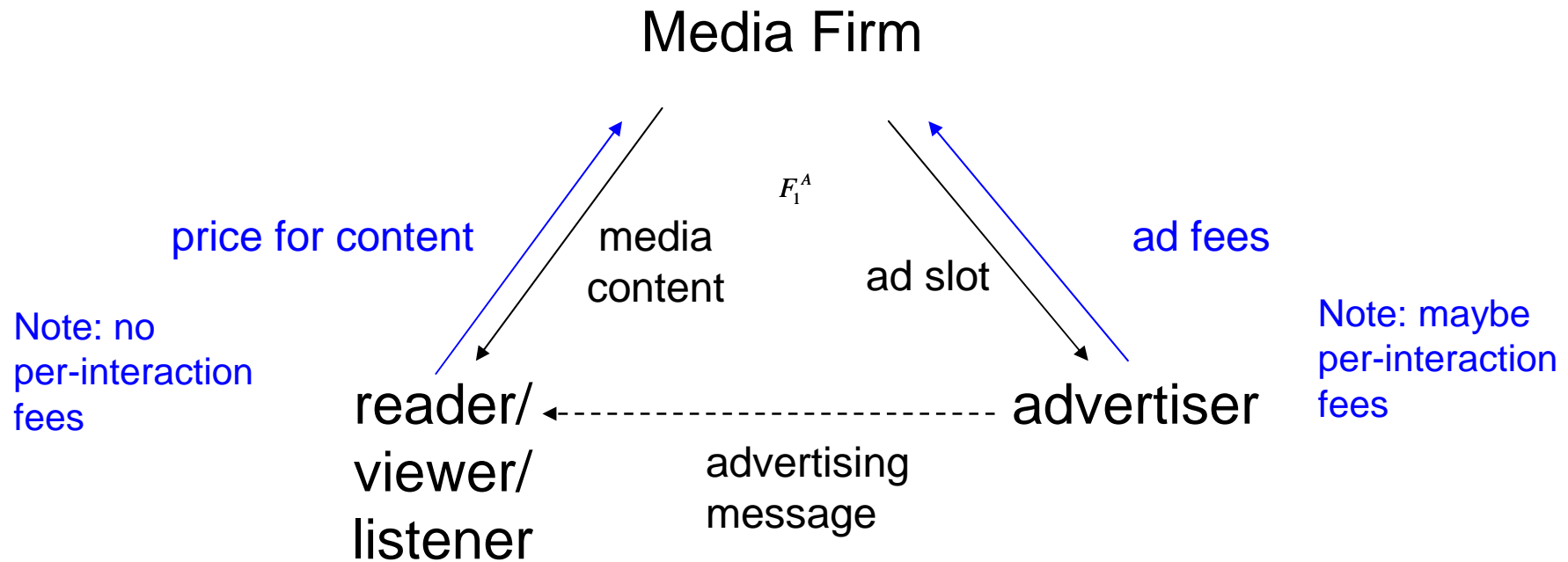
Distinction above corresponds roughly to :

**1) usage (+membership) model - Rochet
&Tirole(2006) differentiated goods,
Caillaud & Jullien(2001,2003)
homogeneous goods**

**2)membership model - Armstrong(2006)
duopoly differentiated products,
Parker&Van Alstyne(2005) monopolist**

A Two-Sided Market: Media

Newspapers, TV, Radio, Internet...



Note: no transaction here, but interaction, usually not observable (but see clicks on ads)

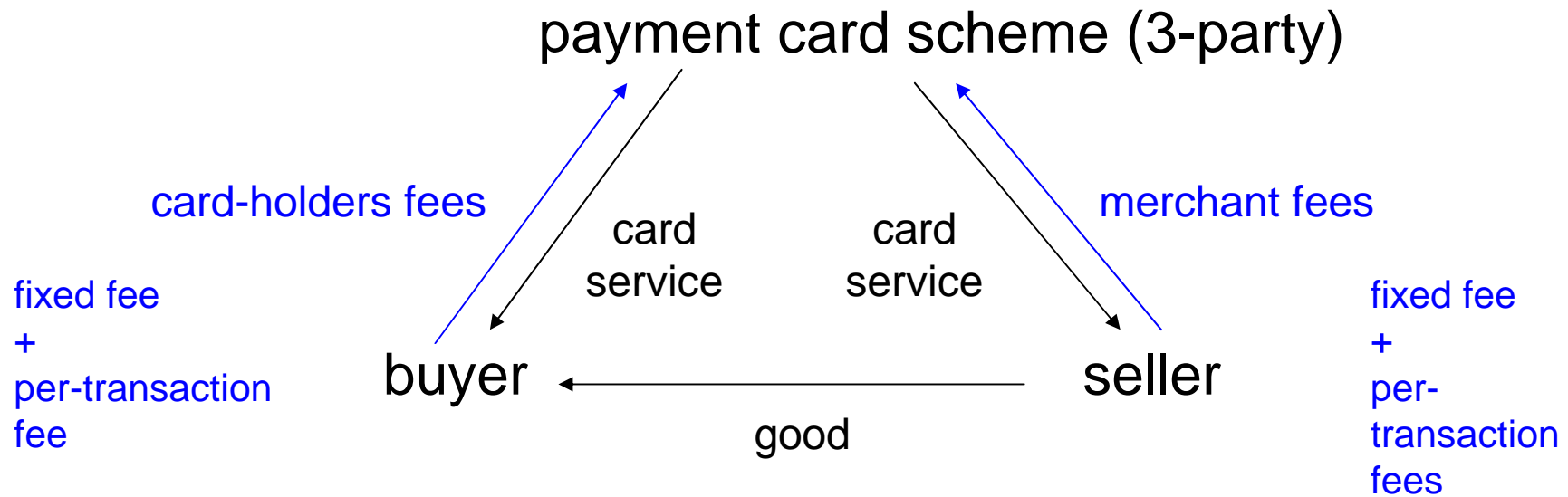
Media as two-sided markets: the idea - 1

- two markets: advertisers & readers/viewers/listeners
- Membership (or adoption) externalities (indirect network externalities):
 - the larger the audience, the higher the demand from advertisers at a given price or the higher the price which can be charged for a given ad slot
 - the more advertising (concentration), the the demand from readers/viewers/listeners
- not internalized by advertisers & readers/viewers/listeners
- internalized by media company

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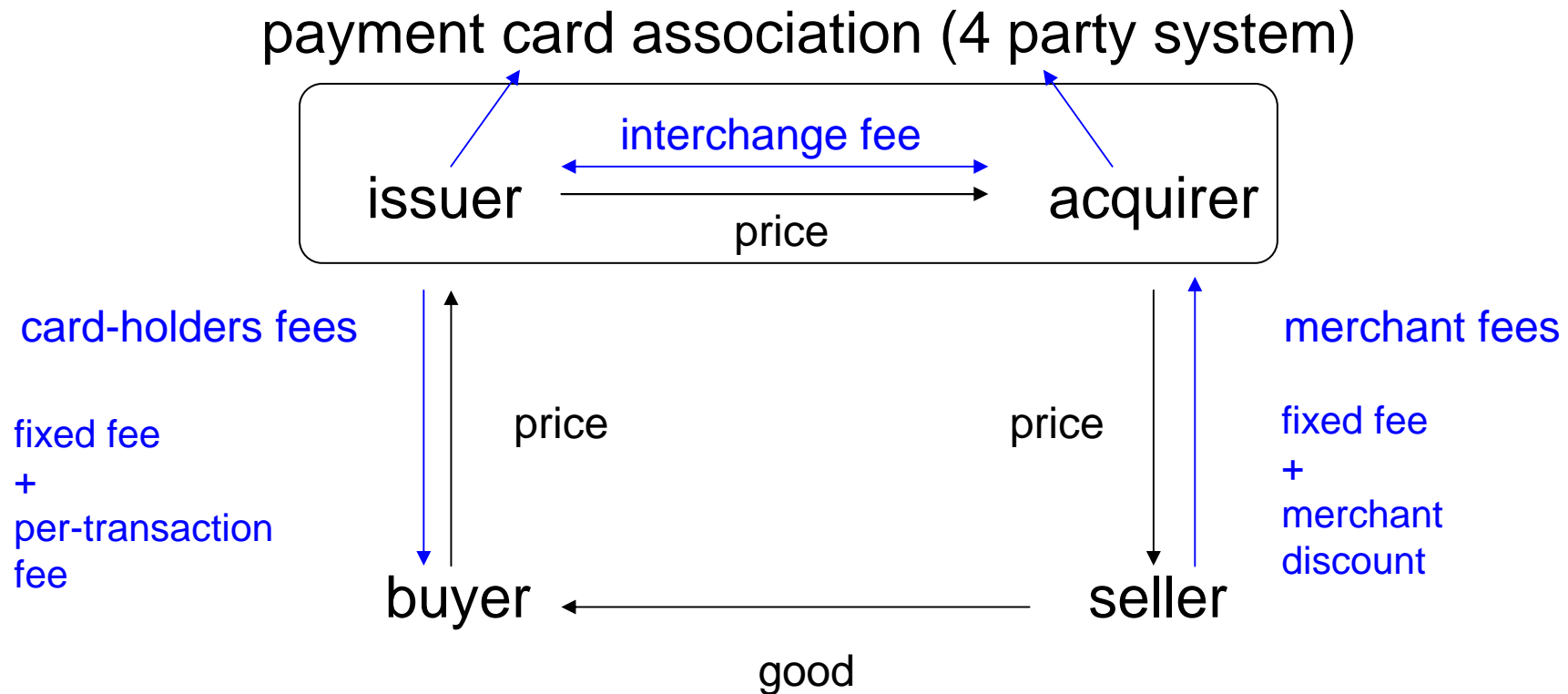
A Two-Sided Market: Payment Cards-1

Also: auction house, operating systems



Note: transaction here, usually observable

A Two-Sided Market: Payment Cards-2



Note: on-us vs off-us transactions

Payment cards as two-sided markets: the idea - 2

- two markets: cardholders & merchants
- membership externalities (indirect network externalities):
 - the more cardholders, the higher demand from sellers
 - the more sellers accept it, the higher demand from buyers
- usage externalities:
 - for the cardholder to pay with his/her card the merchant must be willing to be paid with it
 - for the merchant to be paid with a card the cardholder must be willing to pay with it
- not internalized by buyers and sellers
- internalized by card firm/association

Fallacies from a single-sided approach to a two-sided market

Profit-maximizing prices:

- A high-price cost margin indicates market power
- A price below marginal cost indicates predation

Welfare maximizing prices:

- An efficient price structure reflects relative costs (in mature networks)

The role of competition:

- Higher competition results in a more balanced price structure
- Higher competition results in a more efficient price structure (only price level)

A model of membership

- A monopolist 3-party scheme, membership

$$\max_{F^b, F^s} F^b N^b + F^s N^s - C(N^b, N^s)$$

Armstrong (2006)

$$\text{If } \begin{cases} N^b = N^b(F^b, N^s) \\ N^s = N^s(N^b, F^s) \end{cases} \Rightarrow \begin{cases} N^b = n^b(F^b, F^s) \\ N^s = n^s(F^b, F^s) \end{cases}$$

$$\text{then } \frac{\partial n^b}{\partial F^b} = \dots \text{ and}$$

$$\max_{F^b, F^s} F^b n^b(F^b, F^s) + F^s n^s(F^b, F^s) - C(n^b(F^b, F^s), n^s(F^b, F^s))$$

$$\frac{F^b - c^b}{F^b} = \frac{1}{\left| \varepsilon_{F^b}^{n^b} \right|} - \left(\frac{F^s - c^s}{F^s} \right) \left| \varepsilon_{F^b}^{n^s} \right| \frac{F^s n^s}{F^b n^b} \frac{1}{\left| \varepsilon_{F^b}^{n^b} \right|}$$

$$\frac{F^s - c^s}{F^s} = \frac{1}{\left| \varepsilon_{F^s}^{n^s} \right|} - \left(\frac{F^b - c^b}{F^b} \right) \left| \varepsilon_{F^s}^{n^b} \right| \frac{F^b n^b}{F^s n^s} \frac{1}{\left| \varepsilon_{F^s}^{n^s} \right|}$$

Mark-up depends on own elasticity and cross-elasticity (indirect network effect)

Markup on one side maybe negative! (then other higher than standard monopoly)